

**EXHIBIT C**

**REDACTED**

1  
2 UNITED STATES DISTRICT COURT  
3 EASTERN DISTRICT OF VIRGINIA  
ALEXANDRIA DIVISION

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4 UNITED STATES, et al.,

5 Plaintiffs,

6 -against-

7 GOOGLE LLC,

8 Defendant.

9 No: 1:23-cv-00108-LMB-JFA

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10  
11 September 26, 2023

12 9:03 a.m.

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14  
15  
16 DEPOSITION of ANDREW CASALE,  
17 taken by Defendant, pursuant to Notice,  
18 held at the offices of FENWICK & WEST LLP,  
19 902 Broadway, New York, New York before  
20 Wayne Hock, a Notary Public of the State  
21 of New York.

22  
23  
24  
25 Job No. CS6109029

<p style="text-align: right;">Page 2</p> <p>1 2 APPEARANCES: 3 4 UNITED STATES DEPARTMENT OF JUSTICE Attorneys for Plaintiffs 5 450 5th Street, NW Washington, D.C. 20001 6 7 BY: JULIA TARVER WOOD, ESQ. Julia.wood@usdoj.gov 8 ISABEL AGNEW, ESQ. isabel.agnew@usdoj.gov 9 10 AXINN, VELTROP &amp; HARKRIDER LLP Attorneys for Defendant 1901 L Street, NW 11 Washington, D.C. 20036 12 BY: ALLISON VISSICHELLI, ESQ. avissichelli@axinn.com 13 DENISE L. PLUNKETT, ESQ. dplunkett@axinn.com 14 CHRIS ERICKSON, ESQ. cerickson@axinn.com 15 (via videoconference) 16 17 FENWICK &amp; WEST LLP Attorneys for Witness 902 Broadway 18 New York, New York 10010 19 BY: JAY L. POMERANTZ, ESQ. jpomerantz@fenwick.com 20 SILVIA MEDINA, ESQ. silvia.medina@fenwick.com 21 22 23 24 25</p>	<p style="text-align: right;">Page 4</p> <p>1 2 THE VIDEOGRAPHER: Good morning. 3 We are now going on the record. 4 The time is approximately 9:03 a.m. 5 a.m. 6 It is the 26th of September, 7 2023. 8 Please note that the microphones 9 are sensitive and may pick up 10 whispering and private conversations. 11 Please mute your phones at this 12 time. 13 Audio and video recording will 14 continue to take place, unless all 15 parties agree to go off the record. 16 This is the video recorded 17 deposition of Andrew Casale in the 18 matter of United States, et al., 19 versus Google, LLC. 20 This case is filed in the United 21 States District Court, Eastern 22 District of Virginia, Alexandria 23 Division. The docket number is 24 1:23-cv-00108-LMB-JFA. 25 The location of this deposition</p>
<p style="text-align: right;">Page 3</p> <p>1 2 3 APPEARANCES: (Continued) 4 5 ALSO PRESENT: 6 7 RON MARRAZZO, Videographer JASON CHICCHETTI, ESQ. JENNIFER HOOD, ESQ. 8 9 * * * 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>	<p style="text-align: right;">Page 5</p> <p>1 2 is Fenwick and West located at 902 3 Broadway in New York City. 4 My name is Ron Marrazzo 5 representing Veritext Legal Solutions, 6 and our court reporter is Wayne Hock 7 from the firm Veritext Legal 8 Solutions. 9 I'm not related to any party in 10 this action, nor am I financially 11 interested in its outcome. 12 All counsel attending will be 13 noted on the written transcript. 14 We can now swear in the witness 15 and proceed. 16 ANDREW CASALE, having 17 been first duly sworn by a 18 Notary Public of the State of 19 New York, upon being examined, 20 testified as follows: 21 EXAMINATION BY 22 MS. VISSICHELLI: 23 Q. Hello again, Mr. Casale. 24 A. Hello. 25 Q. I'm Allie Vissichelli and I'll</p>

<p style="text-align: right;">Page 10</p> <p>1 A. Casale</p> <p>2 least one call that I recall prior.</p> <p>3 Q. And when was that call?</p> <p>4 A. I want to say maybe 2021,</p> <p>5 sometime in that year. I can't recall</p> <p>6 exactly when that call was.</p> <p>7 Q. And do you recall who attended</p> <p>8 that call?</p> <p>9 A. No. I wouldn't be able to</p> <p>10 remember names now.</p> <p>11 Q. Do you know if it was anybody</p> <p>12 sitting here today?</p> <p>13 A. I can't tell you with certainty.</p> <p>14 Q. When you met with the DOJ this</p> <p>15 spring, generally what did you talk about?</p> <p>16 A. Ad tech generally, Index</p> <p>17 Exchange's business generally, the</p> <p>18 relationship between Index and publishers,</p> <p>19 dynamics around the auction or header</p> <p>20 bidding.</p> <p>21 That's what I can recall.</p> <p>22 Q. Did the DOJ give you anything</p> <p>23 during this meeting?</p> <p>24 A. What does that mean?</p> <p>25 Q. Any documents to look at.</p>	<p style="text-align: right;">Page 12</p> <p>1 A. Casale</p> <p>2 presumably before 2021.</p> <p>3 Q. And was there anything else that</p> <p>4 you would have wanted to do to prepare for</p> <p>5 today's deposition that you didn't have</p> <p>6 the opportunity to do?</p> <p>7 MR. POMERANTZ: Objection. Calls</p> <p>8 for speculation.</p> <p>9 THE WITNESS: No.</p> <p>10 Q. So what is your current position</p> <p>11 at Index Exchange?</p> <p>12 A. President and CEO.</p> <p>13 Q. How long have you been president</p> <p>14 and CEO?</p> <p>15 A. Eight years-ish. I don't</p> <p>16 remember the exact date.</p> <p>17 Q. And when did you work at Index</p> <p>18 Exchange prior?</p> <p>19 A. Yes.</p> <p>20 Q. And what was your position then?</p> <p>21 A. I held the title of vice</p> <p>22 president of strategy.</p> <p>23 Q. And how long were you vice</p> <p>24 president of strategy?</p> <p>25 A. From 2003.</p>
<p style="text-align: right;">Page 11</p> <p>1 A. Casale</p> <p>2 A. No. I can't recall documents.</p> <p>3 Q. Did you give the DOJ any</p> <p>4 documents?</p> <p>5 A. Not me personally.</p> <p>6 Q. Okay.</p> <p>7 Did anybody during the meeting</p> <p>8 give the DOJ any documents?</p> <p>9 A. Not in the meeting.</p> <p>10 Q. Okay.</p> <p>11 Just to clarify my earlier --</p> <p>12 were you shown any documents during the</p> <p>13 meeting?</p> <p>14 A. No.</p> <p>15 Q. Other than the call that you had</p> <p>16 with the DOJ and the meeting you had with</p> <p>17 them in the spring, were there any other</p> <p>18 occasions you personally spoken with</p> <p>19 anybody at the DOJ?</p> <p>20 A. I believe there may have been an</p> <p>21 additional call, but I can't recall when</p> <p>22 that was.</p> <p>23 Q. Do you recall, was it this year?</p> <p>24 A. No, it would have been the</p> <p>25 before the call that I referenced, so</p>	<p style="text-align: right;">Page 13</p> <p>1 A. Casale</p> <p>2 Q. Prior to being vice president of</p> <p>3 strategy, did you hold any other positions</p> <p>4 at Index Exchange?</p> <p>5 A. No.</p> <p>6 Q. What city do you currently</p> <p>7 reside in?</p> <p>8 A. Toronto.</p> <p>9 Q. And do you have or do you own a</p> <p>10 home anywhere outside of Toronto?</p> <p>11 A. No.</p> <p>12 Q. And what city do you</p> <p>13 predominantly work in?</p> <p>14 MS. WOOD: Objection to the form.</p> <p>15 MR. POMERANTZ: Same objection.</p> <p>16 THE WITNESS: Toronto, but I</p> <p>17 generally travel a lot. I don't know</p> <p>18 exactly how often I'm there.</p> <p>19 Q. And you travel a lot for</p> <p>20 business?</p> <p>21 A. For work, yeah.</p> <p>22 Q. And where do you travel for</p> <p>23 business?</p> <p>24 MR. POMERANTZ: Objection.</p> <p>25 Overbroad.</p>

<p style="text-align: right;">Page 14</p> <p>1 A. Casale</p> <p>2 THE WITNESS: I spent a lot of</p> <p>3 time here in New York, in Europe as</p> <p>4 well, all throughout Europe.</p> <p>5 Q. Is there anywhere besides Europe</p> <p>6 and New York that you spend a significant</p> <p>7 time for business?</p> <p>8 A. No.</p> <p>9 Q. And can you just tell me what</p> <p>10 Index Exchange is?</p> <p>11 A. We are an ad exchange. Our</p> <p>12 customers are publishers, which are media</p> <p>13 companies who exist on the web or an app</p> <p>14 or connected television, and our role is</p> <p>15 to represent their media assets to the</p> <p>16 programmatic buy side of the marketplace.</p> <p>17 Q. And what is an ad exchange?</p> <p>18 A. It's a marketplace where buyers</p> <p>19 and sellers can transact media. So</p> <p>20 sellers have impressions across their</p> <p>21 media properties and buyers place bids.</p> <p>22 And the exchange conducts an auction with</p> <p>23 those bids to clear transactions.</p> <p>24 Q. Does Index Exchange operate a</p> <p>25 single exchange or multiple?</p>	<p style="text-align: right;">Page 16</p> <p>1 A. Casale</p> <p>2 A. We are a global company. I</p> <p>3 don't think that there is a specific list</p> <p>4 of countries that we do or don't operate</p> <p>5 in. We operate largely in major</p> <p>6 economies.</p> <p>7 Q. When did Index Exchange first</p> <p>8 launch its ad exchange?</p> <p>9 A. Roughly 2011.</p> <p>10 Q. And since the launch of the ad</p> <p>11 exchange, has Index Exchange introduced</p> <p>12 any significant innovations to the</p> <p>13 exchange?</p> <p>14 MS. WOOD: Objection to the form.</p> <p>15 MR. POMERANTZ: Same.</p> <p>16 THE WITNESS: To the exchange or</p> <p>17 to the market? What do you</p> <p>18 specifically mean by innovations to</p> <p>19 the exchange?</p> <p>20 Q. Since it was first launched, has</p> <p>21 Index Exchange worked to develop any</p> <p>22 features in the exchange?</p> <p>23 A. Absolutely. Our teams are</p> <p>24 always developing features into the</p> <p>25 exchange. We're known for enhanced levels</p>
<p style="text-align: right;">Page 15</p> <p>1 A. Casale</p> <p>2 MS. WOOD: Objection to the form.</p> <p>3 THE WITNESS: I don't know what</p> <p>4 multiple would mean in the context of</p> <p>5 our business. Single would be my</p> <p>6 answer.</p> <p>7 Q. Let me try to rephrase that</p> <p>8 question.</p> <p>9 So you mentioned you represent</p> <p>10 -- the exchange provides a marketplace for</p> <p>11 different media assets.</p> <p>12 Do you have a single exchange</p> <p>13 that represents all those assets?</p> <p>14 A. We consider Index to be one</p> <p>15 exchange, yes.</p> <p>16 Q. And does Index Exchange offer</p> <p>17 any products besides its ad exchange?</p> <p>18 A. We have a legacy product that we</p> <p>19 refer to as the header tag wrapper, but</p> <p>20 that has been out of commission for a</p> <p>21 while. There's a small number of</p> <p>22 customers that use it. Otherwise, we are</p> <p>23 a one product company.</p> <p>24 Q. And what countries does Index</p> <p>25 Exchange operate in?</p>	<p style="text-align: right;">Page 17</p> <p>1 A. Casale</p> <p>2 of transparency, which our customers rely</p> <p>3 upon, a very deep reporting infrastructure</p> <p>4 which is best in class, deals</p> <p>5 functionality that allows for very</p> <p>6 sophisticated deals between buyers and</p> <p>7 sellers. More recently very sophisticated</p> <p>8 integrations with streaming TV providers,</p> <p>9 which is an emerging ecosystem. Many that</p> <p>10 I can't think of. Our engineers are</p> <p>11 always building features for customers.</p> <p>12 Q. Can you describe a little bit to</p> <p>13 me what you mean when you say that you</p> <p>14 offer a best in class infrastructure?</p> <p>15 A. I believe I said best in class</p> <p>16 transparency, but which one specifically</p> <p>17 would you like me to refer to?</p> <p>18 Q. Sure. Let's go with what you</p> <p>19 said.</p> <p>20 A. At Index we have a phrase that</p> <p>21 every party to a transaction has the</p> <p>22 rights to audit it, which effectively</p> <p>23 means that every impression that we clear</p> <p>24 on the exchange is available to both buyer</p> <p>25 and seller via API. Those transactions</p>

5 (Pages 14 - 17)

<p style="text-align: right;">Page 114</p> <p>1 A. Casale</p> <p>2 THE WITNESS: I think they're</p> <p>3 fundamentally similar. I think the</p> <p>4 differences are channel-specific. So</p> <p>5 there might be features or</p> <p>6 functionality that publishers expect</p> <p>7 in a given channel. There's a lot of</p> <p>8 complication in video and streaming</p> <p>9 depending upon the advice and</p> <p>10 maintaining a good user experience</p> <p>11 that might lead to product</p> <p>12 capabilities that differ depending on</p> <p>13 the platform.</p> <p>14 Q. Are you familiar with the term</p> <p>15 "ad network" as it applies to open web</p> <p>16 display advertising?</p> <p>17 A. Yes.</p> <p>18 Q. What is an ad network?</p> <p>19 A. An ad network is typically a</p> <p>20 company that works with both publishers</p> <p>21 and buyers simultaneously and is</p> <p>22 attempting to do what programmatic does</p> <p>23 across an ecosystem of companies but</p> <p>24 within itself.</p> <p>25 Q. In the market for open web</p>	<p style="text-align: right;">Page 116</p> <p>1 A. Casale</p> <p>2 especially for open web display. So I</p> <p>3 would assume significant, but there's</p> <p>4 also no normal tracking of this, so I</p> <p>5 can't comment.</p> <p>6 Q. Can you think of the names of</p> <p>7 any other ad networks for open web display</p> <p>8 other than Google Display Network?</p> <p>9 MS. VISSICHELLI: Objection.</p> <p>10 Form.</p> <p>11 THE WITNESS: There is a real</p> <p>12 lack of formality on defining what an</p> <p>13 ad network is, so I would be</p> <p>14 speculating to name anybody.</p> <p>15 Q. And do you know what percentage</p> <p>16 of impressions won by Index come through</p> <p>17 Google Display Network?</p> <p>18 A. We would have or we absolutely</p> <p>19 can provide that as a follow-up piece of</p> <p>20 material, but I don't have that statistic</p> <p>21 in my head.</p> <p>22 Q. Do you have a rough estimate in</p> <p>23 mind for the percentage of impressions won</p> <p>24 by Index that came through Google's GDN ad</p> <p>25 network?</p>
<p style="text-align: right;">Page 115</p> <p>1 A. Casale</p> <p>2 display ads, what is the largest ad</p> <p>3 network?</p> <p>4 MS. VISSICHELLI: Objection.</p> <p>5 Form.</p> <p>6 THE WITNESS: As far as I know,</p> <p>7 the Google display network.</p> <p>8 Q. And do you have any</p> <p>9 understanding as to the approximate market</p> <p>10 share of Google display network in the</p> <p>11 market for ad network open web display?</p> <p>12 MS. VISSICHELLI: Objection.</p> <p>13 Form.</p> <p>14 THE WITNESS: I don't know of</p> <p>15 any formal tracking of the share of ad</p> <p>16 networks, so that would be a</p> <p>17 challenging one for me to estimate.</p> <p>18 Q. Are you aware of how the size of</p> <p>19 Google display network's market share</p> <p>20 compares to the next largest competitor in</p> <p>21 that market?</p> <p>22 MS. VISSICHELLI: Objection.</p> <p>23 Form.</p> <p>24 THE WITNESS: There aren't a</p> <p>25 significant number of ad networks,</p>	<p style="text-align: right;">Page 117</p> <p>1 A. Casale</p> <p>2 A. I would estimate it to be</p> <p>3 roughly half to a third of the overall ad</p> <p>4 spend that we see through our connection</p> <p>5 to DV3.</p> <p>6 Q. And when you say "DV3", you're</p> <p>7 referring to DV360?</p> <p>8 A. Correct.</p> <p>9 Q. And that's Google's DSP?</p> <p>10 A. Correct. Our -- the demand that</p> <p>11 we see from GDN comes from the same</p> <p>12 connection to DV3.</p> <p>13 Q. And why is that?</p> <p>14 A. That's a decision that Google</p> <p>15 has imposed for the last roughly eight</p> <p>16 years.</p> <p>17 Q. You say that's a decision Google</p> <p>18 has imposed.</p> <p>19 What do you mean by that?</p> <p>20 A. Our preference would be for the</p> <p>21 two sources of demand to have separate</p> <p>22 integrations, as it more common.</p> <p>23 Q. Why would you prefer that?</p> <p>24 A. It's more transparent, it's</p> <p>25 easier for us to report to publishers</p>

<p style="text-align: right;">Page 130</p> <p>1 A. Casale</p> <p>2 why. We have no way to know why. And</p> <p>3 that's been the case since we first</p> <p>4 integrated GDN, so there was never a</p> <p>5 change where it's a change, it's just</p> <p>6 always been the case.</p> <p>7 And on the DV3, we don't use DSP</p> <p>8 so we are not a customer to a DSP, but</p> <p>9 what we hear is there's something that I</p> <p>10 believe is referred to as Google audiences</p> <p>11 or something like Google audiences that</p> <p>12 are not always available through DV3 to be</p> <p>13 bought anywhere but AdX. So as a result,</p> <p>14 if customers use these audience products,</p> <p>15 the money will move largely to AdX.</p> <p>16 There may be other examples I'm</p> <p>17 not aware of, but those would be the two</p> <p>18 that come to mind.</p> <p>19 Q. Do you believe that AdX is the</p> <p>20 largest ad exchange in the market for open</p> <p>21 web display simply because AdX offers a</p> <p>22 better product?</p> <p>23 MS. VISSICHELLI: Objection.</p> <p>24 Form.</p> <p>25 THE WITNESS: No.</p>	<p style="text-align: right;">Page 132</p> <p>1 A. Casale</p> <p>2 which is a longstanding point of</p> <p>3 feedback that we give to Google.</p> <p>4 Publishers generally use AdX for</p> <p>5 programmatic guaranteed because it's</p> <p>6 seamless and baked in. There's no</p> <p>7 equivalent functionality that is</p> <p>8 available to us today to mimic that.</p> <p>9 There is an assumption that, for the</p> <p>10 two reasons that I cited, AdX has a</p> <p>11 superior pipe to DV3 and GDN.</p> <p>12 Otherwise there might be a few DSPs</p> <p>13 here or there that are different</p> <p>14 between the exchanges, but I don't</p> <p>15 think there would be anything</p> <p>16 significant or material.</p> <p>17 Q. In your opinion, does GDN</p> <p>18 represent a unique source of demand in the</p> <p>19 market?</p> <p>20 MS. VISSICHELLI: Objection.</p> <p>21 Form.</p> <p>22 THE WITNESS: Yes.</p> <p>23 Q. Can you explain why?</p> <p>24 A. As far as I know, GDN is</p> <p>25 comprised of either of hundreds of</p>
<p style="text-align: right;">Page 131</p> <p>1 A. Casale</p> <p>2 Q. Why not?</p> <p>3 A. Well, in the marketplace</p> <p>4 business, a better product, especially on</p> <p>5 the path to commoditization that we're in,</p> <p>6 is defined by value. And I don't believe</p> <p>7 anybody beats Index's pricing, which would</p> <p>8 then imply that there is another reason</p> <p>9 that AdX is larger.</p> <p>10 Q. What do you believe are the</p> <p>11 other reasons that AdX is larger if not</p> <p>12 because it is a better product at a better</p> <p>13 price?</p> <p>14 MS. VISSICHELLI: Objection.</p> <p>15 Form.</p> <p>16 THE WITNESS: This goes back to</p> <p>17 the same mystery. We have no idea.</p> <p>18 It doesn't make any sense.</p> <p>19 Q. Does AdX have access to any</p> <p>20 demand sources that are not available to</p> <p>21 Index Exchange?</p> <p>22 MS. VISSICHELLI: Objection to</p> <p>23 form.</p> <p>24 THE WITNESS: AdX has preferred</p> <p>25 access to programmatic guaranteed,</p>	<p style="text-align: right;">Page 133</p> <p>1 A. Casale</p> <p>2 thousands or millions of SMBs, which is a</p> <p>3 very, very unique source of demand.</p> <p>4 Typically the demand in our marketplace is</p> <p>5 more Fortune 500 large brand advertisers</p> <p>6 who have significant ad budgets as well</p> <p>7 but are materially different than the SMB</p> <p>8 category.</p> <p>9 Q. How are they materially</p> <p>10 different?</p> <p>11 A. Well, there's fewer of them and</p> <p>12 representing the demand of hundreds of</p> <p>13 thousands or millions of businesses is</p> <p>14 really something that a small number of</p> <p>15 companies are in a position to do.</p> <p>16 Q. Have you ever heard that the GDN</p> <p>17 demand is a stable source of demand?</p> <p>18 MS. VISSICHELLI: Objection.</p> <p>19 Form.</p> <p>20 THE WITNESS: I believe I have</p> <p>21 heard a publisher say that at some</p> <p>22 point over the years, yes.</p> <p>23 Q. And what do you understand that</p> <p>24 to mean?</p> <p>25 A. The advertising business has a</p>



<p style="text-align: right;">Page 134</p> <p>1 A. Casale</p> <p>2 seasonality to it. We are about to move</p> <p>3 into the fourth quarter and the holidays,</p> <p>4 which is a seasonal high point. The first</p> <p>5 quarter is a seasonal low point, and so</p> <p>6 you have ebbs and flows in the business.</p> <p>7 I believe because GDN is largely made up</p> <p>8 of SMBs and there is a significant number</p> <p>9 of them, the seasonal dimension is just</p> <p>10 more flat. It's able to buffer the</p> <p>11 seasonality of the business more, which is</p> <p>12 publishers who are trying to plan their</p> <p>13 businesses I would assume is advantageous.</p> <p>14 Q. And how, if at all, does the GDN</p> <p>15 demand relate to Google's search business?</p> <p>16 MS. VISSICHELLI: Objection to</p> <p>17 form.</p> <p>18 THE WITNESS: I am not supremely</p> <p>19 familiar with how GDN and the demand</p> <p>20 in it relates to search. I assume</p> <p>21 it's a similar customer set, I don't</p> <p>22 know specifically. I don't use the</p> <p>23 product.</p> <p>24 Q. How has AdX's market share for</p> <p>25 programmatic open web display transactions</p>	<p style="text-align: right;">Page 136</p> <p>1 A. Casale</p> <p>2 significant cost burden to process the</p> <p>3 scale of transactions in this</p> <p>4 marketplace. And more recently there</p> <p>5 is a growing regulatory burden to be</p> <p>6 in compliance with regulations from a</p> <p>7 privacy perspective.</p> <p>8 So yeah, I'd say the barriers</p> <p>9 continue to rise and have never been</p> <p>10 higher.</p> <p>11 Q. How many DSP integrations does</p> <p>12 Index have today?</p> <p>13 A. I don't know the specific stats</p> <p>14 particular, but I would estimate in</p> <p>15 [REDACTED].</p> <p>16 Q. And how long did it take Index</p> <p>17 to onboard that many DSP integrations?</p> <p>18 A. DSP one was onboarded in 2011</p> <p>19 and we're still integrating DSPs today.</p> <p>20 Q. And is that a time-intensive</p> <p>21 process to onboard DSPs?</p> <p>22 MS. VISSICHELLI: Objection.</p> <p>23 Form.</p> <p>24 THE WITNESS: It's the longest</p> <p>25 sales cycle we have in Index. Some</p>
<p style="text-align: right;">Page 135</p> <p>1 A. Casale</p> <p>2 changed over time?</p> <p>3 MS. VISSICHELLI: Objection.</p> <p>4 Form.</p> <p>5 THE WITNESS: I have no way to</p> <p>6 answer that. There's no formal</p> <p>7 tracking for that.</p> <p>8 Q. Have you ever heard of the</p> <p>9 concept of barriers to entry to a market?</p> <p>10 A. Yes.</p> <p>11 Q. How would you characterize the</p> <p>12 barriers to entry to the exchange market</p> <p>13 for open web display transactions?</p> <p>14 MS. VISSICHELLI: Objection to</p> <p>15 form.</p> <p>16 THE WITNESS: I think they're</p> <p>17 rising all the time and have never</p> <p>18 been higher for a variety of reasons,</p> <p>19 and the cost to build the platform is</p> <p>20 not trivial, the time to build it is</p> <p>21 not trivial. A platform is</p> <p>22 meaningless without integrations. To</p> <p>23 establish integrations with major</p> <p>24 publishers and major DSPs takes a</p> <p>25 significant amount of time. There's a</p>	<p style="text-align: right;">Page 137</p> <p>1 A. Casale</p> <p>2 integrations we have literally waited</p> <p>3 five years to win. And then there is</p> <p>4 an integration process and a ramp up</p> <p>5 process before we have a competitive</p> <p>6 allocation of their demand.</p> <p>7 Q. And from first outreach to</p> <p>8 competitive allocation of demand, what is</p> <p>9 the average amount of time it could take?</p> <p>10 A. Six to twelve months.</p> <p>11 Q. And potentially longer?</p> <p>12 A. As I mentioned, we have DSPs</p> <p>13 that it's taken five years to integrate.</p> <p>14 Q. Have you ever referred to</p> <p>15 Google's practices in the ad tech industry</p> <p>16 as a black box?</p> <p>17 A. I probably have at some point.</p> <p>18 I can't specifically recall when. But it</p> <p>19 would be the mystery that I cited earlier,</p> <p>20 which is we don't have a formal way to</p> <p>21 audit what happens when we place a bid</p> <p>22 into GAM, and that to us represents a</p> <p>23 black box.</p> <p>24 Q. And is that something Index has</p> <p>25 ever asked Google to provide?</p>



<p style="text-align: right;">Page 146</p> <p>1 A. Casale</p> <p>2 that would be the closest that we</p> <p>3 have.</p> <p>4 Q. And do you have any notion of</p> <p>5 what Index's market share is in open web</p> <p>6 display in the United States as opposed to</p> <p>7 globally?</p> <p>8 MS. VISSICHELLI: Objection.</p> <p>9 THE WITNESS: It would likely be</p> <p>10 a few points higher. But again, low</p> <p>11 single digits.</p> <p>12 Q. After AdX, what is the next</p> <p>13 largest exchange for open web display</p> <p>14 transactions?</p> <p>15 MS. VISSICHELLI: Objection.</p> <p>16 Form.</p> <p>17 THE WITNESS: For U.S. web</p> <p>18 display?</p> <p>19 Q. Let's start there.</p> <p>20 A. I think it's a coin flip between</p> <p>21 Magnite, PubMatic, and Index depending</p> <p>22 upon the publisher, depending on the point</p> <p>23 of measurement you're taking.</p> <p>24 Q. What do you mean by point of</p> <p>25 measurement?</p>	<p style="text-align: right;">Page 148</p> <p>1 A. Casale</p> <p>2 course of business. We have to curate</p> <p>3 all of the auctions that we run for</p> <p>4 each individual buyer to make sure</p> <p>5 that they're relevant, and so the more</p> <p>6 transactions that we clear and win,</p> <p>7 the better that curation gets because</p> <p>8 we know more precisely exactly what</p> <p>9 they want to purchase. So certainly</p> <p>10 the more scale in transactions that we</p> <p>11 had, the better we would do at that.</p> <p>12 Pricing is another optimization</p> <p>13 problem where, you know, we work on</p> <p>14 behalf of publishers to determine the</p> <p>15 floor of any given piece of media,</p> <p>16 which is very dynamic and changes all</p> <p>17 the time.</p> <p>18 Those would be two exam compels</p> <p>19 of where having more transaction scale</p> <p>20 would help us solve those problems.</p> <p>21 Q. How has Index's market share in</p> <p>22 open web display varied over time?</p> <p>23 A. I think it's been on a share</p> <p>24 basis probably pretty steady for the past</p> <p>25 five years, maybe mild, you know, movement</p>
<p style="text-align: right;">Page 147</p> <p>1 A. Casale</p> <p>2 A. Impressions versus ad spend</p> <p>3 versus time of year, I would imagine those</p> <p>4 there's variance.</p> <p>5 Q. And how does the market share of</p> <p>6 folks like Magnite, PubMatic, and Index</p> <p>7 compare to the market share of a company</p> <p>8 like AdX?</p> <p>9 MS. VISSICHELLI: Objection.</p> <p>10 Form.</p> <p>11 THE WITNESS: I think combined</p> <p>12 we're still quite a bit smaller.</p> <p>13 Q. Even combining all three</p> <p>14 together against AdX by itself?</p> <p>15 A. Yes.</p> <p>16 Q. And how does that impact your</p> <p>17 ability to compete, if at all?</p> <p>18 MS. VISSICHELLI: Objection.</p> <p>19 Form.</p> <p>20 THE WITNESS: Scale is a very</p> <p>21 valuable input to a lot of</p> <p>22 optimization that at least we do at</p> <p>23 Index. I can't speak to our</p> <p>24 competitors. There are several</p> <p>25 problems that we have to solve in the</p>	<p style="text-align: right;">Page 149</p> <p>1 A. Casale</p> <p>2 one way or the other, but nothing</p> <p>3 material.</p> <p>4 Q. And do you believe Index has an</p> <p>5 opportunity to view and bid on every</p> <p>6 impression that Google sees?</p> <p>7 MS. VISSICHELLI: Objection.</p> <p>8 Form.</p> <p>9 THE WITNESS: We have no way to</p> <p>10 know. We do believe that publishers</p> <p>11 integrate Index with the expectation</p> <p>12 that we see all of their supply.</p> <p>13 Beyond that, we have no way to know.</p> <p>14 Q. And what about -- so you're not</p> <p>15 aware of Google being able to view and bid</p> <p>16 on inventory that Index is not able to</p> <p>17 view and bid on?</p> <p>18 MS. VISSICHELLI: Objection.</p> <p>19 Form.</p> <p>20 THE WITNESS: I'm not aware.</p> <p>21 Q. What, if anything, do you</p> <p>22 believe Index could do to grow its market</p> <p>23 share in the market for programmatic open</p> <p>24 web display transactions, other than what</p> <p>25 it's been doing?</p>

<p style="text-align: right;">Page 154</p> <p>1           A. Casale</p> <p>2     Form.</p> <p>3           THE WITNESS: Our share of ad</p> <p>4     spend is fairly linear to our revenue.</p> <p>5     So more market share would equate to</p> <p>6     more revenue. It's not perfectly</p> <p>7     linear. As we scale, we do tend to</p> <p>8     get cheaper, but it would certainly</p> <p>9     still scale our revenue.</p> <p>10    Q.   And why is it that, as you</p> <p>11   scale, you tend to get cheaper?</p> <p>12    A.   It depends on where the</p> <p>13   transaction originates. We've talked</p> <p>14   about XFR a little bit. In the context of</p> <p>15   XFR, if an agency has an SPO agreement</p> <p>16   with Index and they scale their spend and</p> <p>17   reach a tier, at that tier our take rate</p> <p>18   would drop, so that would be one practical</p> <p>19   example. We also have varying agreements</p> <p>20   with publishers. They can have similar</p> <p>21   versions of that dynamic happen if their</p> <p>22   ad spend grows. And so typically we find,</p> <p>23   as Index scales, our overall take rate</p> <p>24   declines.</p> <p>25   Q.   And you've been in this industry</p>	<p style="text-align: right;">Page 156</p> <p>1           A. Casale</p> <p>2     Form.</p> <p>3           MR. POMERANTZ: Same objection.</p> <p>4           THE WITNESS: There is a direct</p> <p>5     personal example of that happening.</p> <p>6     This was a long time ago now, maybe</p> <p>7     five or six years ago. But on one</p> <p>8     publisher where AdX had been I think</p> <p>9     almost their sole programmatic</p> <p>10    provider, we integrated, we were doing</p> <p>11    very well, we chipped away at their</p> <p>12    share, and our day-to-day contact told</p> <p>13    us that their boss was getting heat</p> <p>14    from the key Google representative who</p> <p>15    represented all of their assets at</p> <p>16    Google, including YouTube, and</p> <p>17    encouraged them to not continue</p> <p>18    eroding the share, which was certainly</p> <p>19    an eye opening event for me personally</p> <p>20    but spoke to the massive breadth scale</p> <p>21    Google has of all of our customers.</p> <p>22    And the unfortunate reality is that,</p> <p>23    even if we do well, if we do too well,</p> <p>24    it might become problematic.</p> <p>25    Q.   What do you mean if we do too</p>
<p style="text-align: right;">Page 155</p> <p>1           A. Casale</p> <p>2     approximately twenty years, you said?</p> <p>3     A.   Correct.</p> <p>4     Q.   You can describe in your own</p> <p>5     words what it's like to compete against</p> <p>6     Google in the ad tech industry?</p> <p>7     A.   It's -- I think competition is</p> <p>8     putting it very politely. It's not -- we</p> <p>9     do our best every day, but Google</p> <p>10    certainly has substantial means far beyond</p> <p>11    our own, and we recognize that. But we do</p> <p>12    our best all the time.</p> <p>13    Q.   Why did you say competition is</p> <p>14    putting it politely?</p> <p>15    A.   Well, we're an ant and they're a</p> <p>16    giant, and so we recognize that reality.</p> <p>17    Our response is to focus on the customer,</p> <p>18    to focus on value, and it's always led us</p> <p>19    to, you know, positive business outcomes.</p> <p>20    Q.   How, if at all, does Google's</p> <p>21    ownership of the largest publisher ad</p> <p>22    server, one of the largest ad networks and</p> <p>23    DSPs, and one of the largest ad exchanges</p> <p>24    impact Index's ability to compete?</p> <p>25    MS. VISSICHELLI: Objection.</p>	<p style="text-align: right;">Page 157</p> <p>1           A. Casale</p> <p>2     well it will become problematic?</p> <p>3     A.   Well, within that exact</p> <p>4     circumstance, our day-to-day contact was</p> <p>5     getting pressure from their boss to not do</p> <p>6     too much with Index, just enough.</p> <p>7     Q.   And YouTube, that's a product</p> <p>8     owned by Google?</p> <p>9     A.   Correct.</p> <p>10    Q.   How, if at all, does Google's</p> <p>11    ownership of DFP or GAM impact Google's</p> <p>12    position in the market in AdX, the ad</p> <p>13    exchange?</p> <p>14    MS. VISSICHELLI: Objection.</p> <p>15    Form.</p> <p>16    MR. POMERANTZ: Same objection.</p> <p>17    THE WITNESS: Well, going back</p> <p>18    to the example that I cited with</p> <p>19    programmatic guaranteed, any</p> <p>20    advantageous integration that AdX has</p> <p>21    to GAM that there is not a direct</p> <p>22    comparable that we can leverage is a</p> <p>23    massive advantage. Programmatic</p> <p>24    guaranteed is full stop a massive</p> <p>25    advantage for AdX because at the click</p>

40 (Pages 154 - 157)

<p style="text-align: right;">Page 162</p> <p>1 A. Casale</p> <p>2 auctions daily. Of that, I would estimate</p> <p>3 seventy percent would be the open web. We</p> <p>4 can provide exact specifics. That's just</p> <p>5 an estimate.</p> <p>6 Q. And so I'm not even going to</p> <p>7 attempt to do the math, of that seventy</p> <p>8 percent of four hundred billion auctions</p> <p>9 you see a day, how many do you end up</p> <p>10 winning?</p> <p>11 A. On the big number, the four</p> <p>12 hundred billion number, I believe that</p> <p>13 today we win half of one percent. It's an</p> <p>14 estimate.</p> <p>15 Q. Now, how, if at all, does the</p> <p>16 take rates that Index Exchange charges</p> <p>17 compare to the take rates of Magnite, for</p> <p>18 example, if you know?</p> <p>19 MS. VISSICHELLI: Objection.</p> <p>20 Form.</p> <p>21 THE WITNESS: As far as I know,</p> <p>22 Magnite does not publicly disclose</p> <p>23 their take rate. We believe we have</p> <p>24 best in class pricing, but we have no</p> <p>25 direct way to know.</p>	<p style="text-align: right;">Page 164</p> <p>1 A. Casale</p> <p>2 Q. Do you have -- how would you</p> <p>3 characterize the size of OpenX as a</p> <p>4 competitor in the market for open web</p> <p>5 display?</p> <p>6 MS. VISSICHELLI: Objection.</p> <p>7 Form.</p> <p>8 THE WITNESS: They're on the</p> <p>9 smaller side.</p> <p>10 Q. How often does Index have an</p> <p>11 opportunity for exclusive access to bid on</p> <p>12 a piece of publisher inventory?</p> <p>13 A. Very rarely. It might still</p> <p>14 exist on the exchange, but it's less than</p> <p>15 one percent, if at all.</p> <p>16 Q. And how many exchanges typically</p> <p>17 compete for a given impression for your</p> <p>18 open web display?</p> <p>19 MS. VISSICHELLI: Objection.</p> <p>20 Form.</p> <p>21 THE WITNESS: That varies widely</p> <p>22 by publisher and strategy. It could</p> <p>23 be a handful, it could be a dozen.</p> <p>24 Every publisher has their own</p> <p>25 strategy.</p>
<p style="text-align: right;">Page 163</p> <p>1 A. Casale</p> <p>2 Q. And the same question for</p> <p>3 PubMatic, how does Index Exchange take</p> <p>4 rates compare to PubMatic, if you know?</p> <p>5 MS. VISSICHELLI: Objection.</p> <p>6 Form.</p> <p>7 THE WITNESS: PubMatic does not</p> <p>8 publicly disclose take rate, but we</p> <p>9 are supremely confident that our take</p> <p>10 rates are significantly lower than</p> <p>11 theirs.</p> <p>12 Q. And the same question for Xandr,</p> <p>13 how does Index's take rates compare to</p> <p>14 those of Xandr, if you know?</p> <p>15 MS. VISSICHELLI: Objection to</p> <p>16 form.</p> <p>17 THE WITNESS: Xandr does not</p> <p>18 publicly disclose. We don't know.</p> <p>19 Q. And last for OpenX, how does</p> <p>20 Index's take rate compare to that of</p> <p>21 OpenX?</p> <p>22 MS. VISSICHELLI: Objection.</p> <p>23 Form.</p> <p>24 THE WITNESS: OpenX does not</p> <p>25 disclose. We have no way to know.</p>	<p style="text-align: right;">Page 165</p> <p>1 A. Casale</p> <p>2 Q. Based on conversations with</p> <p>3 publishers, does Index have a view about</p> <p>4 what publishers value when choosing an</p> <p>5 exchange?</p> <p>6 A. I think publishers value</p> <p>7 transparency and trust, they value</p> <p>8 innovations, they certainly value the</p> <p>9 commercial arrangement they have with the</p> <p>10 individual exchange, quality. We have a</p> <p>11 significant amount of effort that we do to</p> <p>12 ensure that every ad is safe and vetted,</p> <p>13 so there's a variety of topics in there.</p> <p>14 Q. And how does Index compare on</p> <p>15 those qualities to AdX, for example?</p> <p>16 MS. VISSICHELLI: Objection.</p> <p>17 Form.</p> <p>18 THE WITNESS: We think we're the</p> <p>19 best, but we're also a competitive</p> <p>20 company and we're always selling in</p> <p>21 market. But we really focus on a</p> <p>22 small number of problems and we think</p> <p>23 that gives us an edge.</p> <p>24 Q. What do you mean by that?</p> <p>25 A. We're not distracted by being</p>

<p style="text-align: right;">Page 194</p> <p>1 A. Casale</p> <p>2 you do can be done the right way or the</p> <p>3 wrong way and there were publishers who</p> <p>4 implemented header bidding completely</p> <p>5 wrong, but that does not mean that header</p> <p>6 bidding is completely wrong.</p> <p>7 So I think they were able to use</p> <p>8 examples of very primitive implementations</p> <p>9 that were absolutely latent and poor for</p> <p>10 user experience, but that was not a</p> <p>11 characterization of the entirety of the</p> <p>12 implementation. It certainly was not a</p> <p>13 fair characterization of our header type</p> <p>14 wrapper which was very tuned for latency.</p> <p>15 So I would say the argument was poor, but</p> <p>16 they were able to use examples that were</p> <p>17 very primitive to support it.</p> <p>18 Q. And what about how would you</p> <p>19 respond to Google's criticism that AdX has</p> <p>20 every DSP and the demands so you don't</p> <p>21 need header bidding?</p> <p>22 A. A strong pitch. And we had to</p> <p>23 sell against it because that pitch was</p> <p>24 heard by very senior people at publishers</p> <p>25 who then questioned day-to-day teams who</p>	<p style="text-align: right;">Page 196</p> <p>1 A. Casale</p> <p>2 THE WITNESS: I did not hear</p> <p>3 that argument. That's a stretch is</p> <p>4 all I can say.</p> <p>5 Q. Why do you say that?</p> <p>6 A. You can make the same argument</p> <p>7 for waterfall. Fraud, quality, they're</p> <p>8 all concerns that our ecosystem. They</p> <p>9 have absolutely nothing to do with the</p> <p>10 technical point of integration.</p> <p>11 Q. Is there anything about header</p> <p>12 bidding that makes it more susceptible to</p> <p>13 fraud or bots?</p> <p>14 A. Anything that you can do in</p> <p>15 header bidding you can do in the</p> <p>16 waterfall.</p> <p>17 Q. Is there anything about safety</p> <p>18 and quality vis-à-vis header bidding as</p> <p>19 opposed to any other form of auction</p> <p>20 methodology?</p> <p>21 MR. POMERANTZ: Objection. Form.</p> <p>22 THE WITNESS: I am not aware.</p> <p>23 MS. VISSICHELLI: Why don't we</p> <p>24 take a break.</p> <p>25 THE VIDEOGRAPHER: The time is</p>
<p style="text-align: right;">Page 195</p> <p>1 A. Casale</p> <p>2 were implementing header bidding. But I</p> <p>3 think it fell apart as publishers adopted</p> <p>4 header bidding and revenue went up. The</p> <p>5 two don't compute. If all you need is</p> <p>6 AdX, why did revenue go up when you</p> <p>7 implemented header bidding.</p> <p>8 So I think it was short lived,</p> <p>9 but it was the early attack vector.</p> <p>10 Q. Did you ever hear Google</p> <p>11 complain that header bidding would result</p> <p>12 in self-competition among advertisers?</p> <p>13 MS. VISSICHELLI: Objection.</p> <p>14 Form.</p> <p>15 THE WITNESS: We did hear that</p> <p>16 claim. That claim only mattered in</p> <p>17 the era of the second price auction</p> <p>18 which did not last long in the era of</p> <p>19 header bidding.</p> <p>20 Q. And did you ever hear Google</p> <p>21 criticize header bidding for supposedly</p> <p>22 increased fraud or brand safety or quality</p> <p>23 controls?</p> <p>24 MS. VISSICHELLI: Objection.</p> <p>25 Form.</p>	<p style="text-align: right;">Page 197</p> <p>1 A. Casale</p> <p>2 approximately 2:04 p.m.</p> <p>3 We are going off the record.</p> <p>4 (Whereupon a break was taken)</p> <p>5 THE VIDEOGRAPHER: The time is</p> <p>6 approximately 2:20 p.m.</p> <p>7 We are back on the record.</p> <p>8 Q. Okay.</p> <p>9 Earlier today you talked about</p> <p>10 Open Bidding.</p> <p>11 What is your understanding of</p> <p>12 why Google created the Open Bidding</p> <p>13 product?</p> <p>14 MS. VISSICHELLI: Objection.</p> <p>15 Form.</p> <p>16 THE WITNESS: We assumed it was</p> <p>17 an attempt at creating a header</p> <p>18 bidding killer.</p> <p>19 Q. Why do you assume that?</p> <p>20 A. It mechanically was very similar</p> <p>21 to header bidding. I think we picked up</p> <p>22 information from pubs that sort of implied</p> <p>23 that Google encouraged them to use Open</p> <p>24 Bidding and walk away from header bidding,</p> <p>25 so that sort of informs that assumption.</p>

<p style="text-align: right;">Page 198</p> <p>1 A. Casale</p> <p>2 But again, these are personal anecdotes</p> <p>3 from what we bumped into. Yeah.</p> <p>4 Q. And is Index a customer of</p> <p>5 Google's Open Bidding product?</p> <p>6 A. Yes.</p> <p>7 Q. And why did Index decide to</p> <p>8 participate in Google's Open Bidding</p> <p>9 product?</p> <p>10 A. First and foremost, we follow</p> <p>11 our customers' instructions, it's very</p> <p>12 important to us, and we believe in choice</p> <p>13 as a company. And customers wanted Index</p> <p>14 to integrate with Open Bidding, so we did.</p> <p>15 Q. And prior to the introduction of</p> <p>16 header bidding, did you think publishers</p> <p>17 wanted more choice than they had?</p> <p>18 MS. VISSICHELLI: Objection.</p> <p>19 Form.</p> <p>20 THE WITNESS: I think prior to</p> <p>21 header bidding, customers didn't trust</p> <p>22 the programmatic marketplace as</p> <p>23 functioning in their best interests.</p> <p>24 And while I'm sure there are still</p> <p>25 customers today who want more, I think</p>	<p style="text-align: right;">Page 200</p> <p>1 A. Casale</p> <p>2 inventory that were not available via</p> <p>3 header bidding when it was first</p> <p>4 introduced?</p> <p>5 A. Yes. Header bidding largely was</p> <p>6 open web display at the beginning and for</p> <p>7 a while thereafter.</p> <p>8 Q. And again, open web display,</p> <p>9 that's a term that you use in your</p> <p>10 industry?</p> <p>11 A. Not always in that exact</p> <p>12 sequence, but yes, open web display, yeah.</p> <p>13 I might not always say it that way.</p> <p>14 Q. And is that a term that has</p> <p>15 meaning in your industry, whether you say</p> <p>16 it in that order or not?</p> <p>17 A. Yes, absolutely. Everybody</p> <p>18 knows what that is.</p> <p>19 Q. Did Open Bidding kill header</p> <p>20 bidding?</p> <p>21 MS. VISSICHELLI: Objection to</p> <p>22 form.</p> <p>23 THE WITNESS: No. In hindsight,</p> <p>24 if anything it grew header bidding.</p> <p>25 Q. Why do you say that?</p>
<p style="text-align: right;">Page 199</p> <p>1 A. Casale</p> <p>2 that feeling was more prevalent back</p> <p>3 then and header bidding was a way to</p> <p>4 change that.</p> <p>5 Q. And what hopes or expectations,</p> <p>6 if any, did Index have about Open Bidding?</p> <p>7 A. The most compelling part of Open</p> <p>8 Bidding to us was the opportunity to work</p> <p>9 with any publisher who had not adopted</p> <p>10 header bidding relatively quickly to</p> <p>11 expose our value to those customers. At</p> <p>12 the time header bidding was still fairly</p> <p>13 new and not every publisher had embraced</p> <p>14 it.</p> <p>15 Q. Did header bidding require any</p> <p>16 form of technical expertise on the</p> <p>17 publisher end?</p> <p>18 A. Yes, to some extent. As the</p> <p>19 name implies, header bidding goes inside</p> <p>20 of something called the header tag in the</p> <p>21 HTML of a publisher website which is</p> <p>22 technical and so required technical</p> <p>23 resources on the publisher side to stand</p> <p>24 up.</p> <p>25 Q. And were there certain forms of</p>	<p style="text-align: right;">Page 201</p> <p>1 A. Casale</p> <p>2 A. Well, that segment of publishers</p> <p>3 who hadn't adopted header bidding would</p> <p>4 often be encouraged by early results from</p> <p>5 Open Bidding and then adopt header</p> <p>6 bidding.</p> <p>7 Q. Has either Open Bidding or</p> <p>8 header bidding taken away Google's</p> <p>9 dominance in the ad tech market?</p> <p>10 MS. VISSICHELLI: Objection.</p> <p>11 Form.</p> <p>12 THE WITNESS: I don't know what</p> <p>13 Google's dominance means specifically,</p> <p>14 but I would say, you know, GAM is</p> <p>15 still the number one ad server, AdX is</p> <p>16 still the number one ad exchange. Not</p> <p>17 much has changed at a high level.</p> <p>18 Q. When Index participates in Open</p> <p>19 Bidding, does Index pay a fee to Google?</p> <p>20 A. Yes.</p> <p>21 Q. What is that fee?</p> <p>22 A. I -- it's a take rate. I don't</p> <p>23 specifically recall exactly the</p> <p>24 percentage, but I believe the percentage</p> <p>25 varies depending on the channel. I</p>




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1 A. Casale  
2 conclude my questioning for right now,  
3 but we'll reserve if there's any  
4 follow-up.  
5 MS. WOOD: No further questions.  
6 Thanks very much for your time.  
7 MS. VISSICHELLI: Thank you.  
8 THE VIDEOGRAPHER: It is 4:21,  
9 approximately.  
10 This concludes today's  
11 testimony.  
12 We are off the record.  
13 (TIME NOTED: 4:21 p.m.)  
14 \_\_\_\_\_ (Signature of witness)  
15 Subscribed and sworn to  
16 before me this \_\_\_\_\_  
17 day of \_\_\_\_\_,  
18 2023.  
19 \_\_\_\_\_  
20  
21  
22  
23  
24  
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1  
2 \* \* \*  
3  
4 I N D E X  
5 WITNESS EXAMINED BY PAGE  
6 A. Casale Ms. Vissichelli 6, 244  
7 Ms. Wood 92  
8  
9 E X H I B I T S  
10 FOR ID DESCRIPTION PAGE  
11 Exhibit 1 Document entitled  
12 Index Exchange Builds  
13 Exchange of the Future 18  
14 Exhibit 2 Document entitled  
15 Reflecting on the  
16 Economics 46  
17 Exhibit 3 Document entitled  
18 Products, Channels and  
19 Formats 68  
20 Exhibit 4 Document entitled  
21 The Most Agile Year 75  
22  
23  
24 \* \* \*  
25

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1  
2 CERTIFICATION BY REPORTER  
3  
4 I, Wayne Hock, a Notary Public of the  
5 State of New York, do hereby certify:  
6 That the testimony in the within  
7 proceeding was held before me at the  
8 aforesaid time and place;  
9 That said witness was duly sworn  
10 before the commencement of the testimony,  
11 and that the testimony was taken  
12 stenographically by me, then transcribed  
13 under my supervision, and that the within  
14 transcript is a true record of the  
15 testimony of said witness.  
16 I further certify that I am not  
17 related to any of the parties to this  
18 action by blood or marriage, that I am not  
19 interested directly or indirectly in the  
20 matter in controversy, nor am I in the  
21 employ of any of the counsel.  
22 IN WITNESS WHEREOF, I have hereunto  
23 set my hand this 28th day of September,  
24 2023.   
25